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ABSTRACT

A case study of the relationship between governmental funding of public universities and governmental control in one nation, Mexico, is presented. Three factors in the university's autonomy from financial control are discussed: (1) university power to distribute its funds as it sees fit; (2) security against stark income fluctuations; and (3) determination of funding levels by non-coercive criteria. It is concluded that while the Mexican government derives certain power from its near monopoly of funds, that power is decidedly circumvented. It is shown that the university itself distributes the lump-sum allocation it receives, without need to account to the government. It can almost always count on an income at least as great as last year's and usually can count on fairly steady growth in inflation-adjusted funds. Financial security is further indicated by the stable or growing shares held by higher education, public universities collectively, and public universities individually, in the national or education budgets. The great bulk of the public universities' funds are based on last year's funds and university population, not government assessment of university performance. (SPG)

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LIMITS ON GOVERNMENT'S FINANCIAL CONTROL OF THE UNIVERSITY: MEXICO

by

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Financing and Control

Can universities be autonomous while relying on their governments for economic resources? Cross-nationally, "The changing relation between higher education and government is that it is becoming more governmental."[1] Financing is widely regarded as the chief weapon in the government's control arsenal -- and the Achilles Heel of public university autonomy. Many observers assume that dependency necessarily obviates autonomy, that he who pays controls. A Venezuelan ex-Minister/ex-Rector has declared that Latin American universities inevitably lack economic autonomy since they are unable to develop independent financial sources.[2] The issue is crucial for all nations, such as the U.S., where autonomy is valued, but where the government's financial role is growing. The major theme of this paper, developed from research in Mexico, is that government financing need not imply government control.

While challenging the inevitability of a financing-control correlation, I do not for a moment wish to deny the existence of abundant affirmative evidence. Indeed, the U.S. government conditions funds on affirmative action plans; the Brazilian government conditions new funds to "private universities" on its own increased say in their admissions policies. Pioneering works of broad comparative scope have indicated that greater government funding is linked to greater government control e.g., more in France or the Soviet Union than Canada or Japan.[3] But the evidence is by no means monolithic. Many U.S. universities retain considerable self-rule while nonetheless depending on state governments for a large share of their income. Precisely those regimes in Latin America's southern cone, which have repressed their universities so harshly, have also moved away from government financing. In what may seem a curious twist, defenders of Mexican university

autonomy insist that the government continue as the pre-eminent financier, while the government has been trying to reduce its financial involvement. One of that government's harshest critics writes, "The vía of government financing is the vía which best guarantees university autonomy."[4] The reasoning is that diversification dilutes responsibility, making it possible for any outside source to be fickle. If reliance on government funds entails some risk, that risk may decrease as the degree of reliance increases. Thus, neither the supposition which links government financing with control, nor its corollary which links greater financing with greater control, should be accepted a priori.

What we can accept a priori is that government authority to set the level of university income is intrinsically antithetical to autonomy, as is any external control of the university. Autonomy, defined here simply as self-rule, presupposes the university's own decision-making authority over its economic as well as academic affairs. Even the government's power to set allocation levels may be quite restricted in reality, however. The clearest case of constraint, for which I can offer only Costa Rica as a possible example,[5] would involve (1) respected legislation guaranteeing certain amounts or percentages, e.g., of national budgets. The government would not, in fact, have much leeway in such a case. Potentially approaching such limits would be (2) tacit guarantees that income flows regardless of university policies. Next would be protection based on the extent of (3) the university's power vis-à-vis the government. Finally, restraint could be the product of (4) the government's own good will. Each of these possibilities would limit government's arbitrary power to set funding levels. My attention focuses here on the second and third factors.

In sum, the government's financial power may subvert autonomy either by setting funding levels or by manipulating the funds to steer the university towards desired ends. But these are empirical questions. Definitions and measures of autonomy should not be based on percentages of government-derived income. The degree of autonomy lost depends on how the allocations are wielded. Although substantial government funding is the general reality for public universities worldwide, we have practically no analytical research on its relation to government control.

What follows, then, is a case-study of the relationship between funding and government control in one nation, Mexico. Its explicit purpose is to discover some of the general limits to government control, the untold part of the story. It does not consider control via routes other than financing. Despite the inherent dangers of generalization, there are at least two reasons for a case-study approach: (1) Analysis of academic governance is still in an early stage, with political science probably the least involved of all the social sciences.[6] We need much more data before we can generalize about university-government relations, control, power, or, in short, "who governs." (2) I am less concerned to prove a generality than to show a real possibility -- that autonomy can be compatible with dependence on government funds. The Mexican case shows that this can be true, and how and why it can be true; as such it is richly suggestive about other systems.

A few words are in order about the case itself. Mexican higher educational institutions incorporate nearly a million students (roughly one-half in the sub-professional, or preparatoria level). There are three main sectors: the private sector, the government-run technical institutes, and

the public universities. Since the first is largely independent of government funds, and the second does not claim autonomy, I shall focus on the third. There are thirty-three public universities in Mexico, two in the Federal District, and generally one in each state. The great majority of students in Mexican higher education study in these universities. Easily most important is the National Autonomous University of Mexico (UNAM). Since its opening in 1553, the Mexican public university never has been independent of government funds, except temporarily from 1934 to 1936. That brief authority was ephemeral, however, because there were no viable financial alternatives: the university was weakened, and thus more susceptible to outside pressures. Presently, there are three basic sources of public university income: private, federal and state (UNAM lacking the third). The government provides some 95% of UNAM's income and 91% (52% federal, 39% state) of the state universities' income.[7] Recently, most experts have described the Mexican government as authoritarian.[8] Even those of us who believe that this characterization has gone too far would concur that the government is not weak, not especially disposed to grant free reign to important social forces. If the rule is that government financing means government control, Mexico should not be an exception.

Our data deal mostly with the last three administrations, offering perhaps distinct contrasts in financial policies. Comparatively speaking, university-government relations under López Mateos (1958-1964) were regarded as friendly, under Díaz Ordaz (1964-1970) as hostile, and under Luis Echeverría (1970-1976) as tense but improved. I will consider three key factors in the university's autonomy from financial control: (1) university

power to distribute its funds as it sees fit; (2) security against stark income fluctuations; (3) determination of funding levels by non-coercive criteria.

Distributory Power

The budgetary process starts autonomously to the extent that a university draws up its own initial budget.[9] Given the technical and academic requisites involved, many governments probably defer to university expertise in budget preparation -- such is the Mexican case. In fact, requests stem from director assessments at the facultad or departmental level, these made largely on the basis of last year's budget. The solicitations go to a central financial authority, often the rector (the administrative head). Degrees of bargaining are variable, but eventually the rector is responsible for coordination. The university council gives final approval.

Of course, a public university will rarely receive all the funds necessary to carry out its initial budget. Does the government simply cut total requests, or does it pare part-by-part, thus effecting budgetary redistribution? Mexican universities solicit one basic sum from the government. Moreover, their budget categories, where presented, are generally very broad and mixed. Rarely is it feasible for the government to probe too deeply inside the budget. The university receives one aggregate allocation, not a series of allocations to its constituent parts. The government does not have the power to favor and disfavor within the university; it is left with the far cruder tool of manipulating funds to the university as a whole.

Another key factor in the autonomy of internal budget-preparations concerns

university accountability for its spending. Under 1929 legislation, which greatly restricted autonomy, the university had to account to the President, the Minister of Education, and the Congress for activities and corresponding expenditures. A 1947 law gave the federal government power to control the internal budgets of decentralized state agencies, but specifically excluded UNAM; that exemption has been extended to state universities. Reigning legislation obliges university financial authorities to give annual accountings not to the government but only to their own councils. Thus, the last stage of the distributory process is as autonomous as the preparation stage was. It is probably rare that a public university would be so free from accountability to the government. Further, there are a number of other problems with distributive autonomy which could be more salient elsewhere; these include government categorical grants and university program budgeting, leading to more bargaining by budget lines. But such factors may be secondary.

Income Fluctuations

Autonomy suffers when a university cannot count on stable income to distribute. If the government exerts strong control, funds might rise and fall according to compliance with its wishes. If, on the other hand, the allocation process is not highly detrimental to autonomy, funds should not fluctuate erratically. Of course, fluctuation might be caused by non-coercive factors such as changes in enrollments. Then, too, funds may increase steadily as a university complies with government policy; or an autonomous university may reap only income continuity while more compliant ones gain important increases. The presence or absence of great fluctuations does not prove economic autonomy, but does give strong indications about one of the

sharpest and most feared abuses of it. The key issue involved is security, the university's security to function according to its own policies without continual fear of the government's financial response. Does university sin bring government retribution? The Mexican case suggests that there are definite limits.

Guarantees Against Reductions

There are practically no legislative boundaries on the Mexican government's authority to set funding levels. Some state laws contain limited pledges, usually earmarking special taxes; federal policies lack even these small guarantees. And yet there is very little negative variability in public university income. Federal funds virtually never decline. The Mexican government does not punish universities by cutting their funds. Universities know this -- and it provides them considerable security from blatant external control. Echeverría verbalized the policy by labelling last year's funds "untouchable," the "ordinary" funds to which "extraordinary" ones could be added.

Even apart from formal declarations, the bulk of the financial sum has been considered basically non-negotiable, last year's amount accepted as an inviolate lump sum. The government often puts it on the table as its formal opener. A rector might receive this without ever bargaining. Extensive literature on incremental budgetary processes gives reason to believe that significant income percentages may be fixed, solicitors needing to justify only their marginal requests.[10] Mexico's Education Subsecretary for Planning resignedly stressed that he could hardly "plan" at any level of the educational system since about 96% of his Ministry's budget was claimed by ongoing

expenses; there is corroborating cross-national evidence on higher education.[11]

Data from state universities, 1959-1975, show only twenty-seven declines in 418 (6.5%) annual incomes received.[12] Only ten amount to as much as five percent. Some declines in total income are unrelated to government policy: private contributions decline more often. Federal cuts are extremely rare (2.4%).

Security is even greater, as expected, for the more autonomous UNAM. Its total income declines only once (and by less than 1%) in the same 1959-1975 period. Income was much less secure before the University achieved autonomy (partially in 1929, fully in 1933). Between 1911 and 1933 there were at least seven (33%) declines, with two years of data missing due to revolutionary turmoil, so that there may have been as many as nine (49%) declines.[13] For a few years the "independent" University received no annual government contribution -- and nearly suffocated. University-government rapprochement has been such that the last thirty-six years (six administrations of different stripes) have produced only one slight decline and two freezes. The change between the revolutionary and contemporary eras provides an interesting contrast in the use of financial cuts by different regimes.

Income Variability

If blatant cuts are excluded from government's control repertoire, we may reject the image of a highly-castigated university. But how variable are funding increases? Is there stable growth or jolting erraticism? This analysis probes variability to (1) higher education overall, (2) state universities collectively, (3) state universities individually, (4) UNAM.

(1) Higher education in the revolutionary period always faced the

danger of government punishment for its "elitism." But recent years show either stability or growth. As Table 1 demonstrates, both López Mateos (1962-1964) and Díaz Ordaz (1965-1970) maintained steady expenditures, each allocating averages of 2.1% of the federal budget and 15.7% of the education budget. Echeverría then increased higher education's average shares to 2.9% and 19.9% respectively. It is interesting that higher education's overall financial fate would be stable under Díaz Ordaz, so vilified for his hostile policies. The data imply the importance of incrementalism and interest-group power, as opposed to governmental latitude.

(2) State universities collectively have usually shared in this budgetary security. A government could maintain stability to higher education overall with allocations to non-autonomous technical institutes offsetting variability to autonomous universities. In fact, each administration's annual allocations to the state universities collectively approximate linear patterns. The tight clustering of points around the lines in Figure 1 illustrates that Mexican administrations maintain steady financial policies year to year.[14] Universities enjoy a strong measure of economic security when last year's income plus "slope" predict this year's income. Again, incremental budgetary policy-making is a powerful check on government capriciousness.

Universities enjoy added security when stable growth holds across administrations. This is not the case in Mexico, as Figure 1 also shows. The shocking disturbance is the Díaz Ordaz period, when federal funds were frozen. Figure 1 further indicates, however, that many state governments picked up the slack so that total income linearity holds until 1970. It is noteworthy that both total (by 1972) and even federal contributions (by 1973) recover the linear patterns established in the first administration. There

TABLE 1

PERCENTAGE EXPENDITURES ON HIGHER EDUCATION

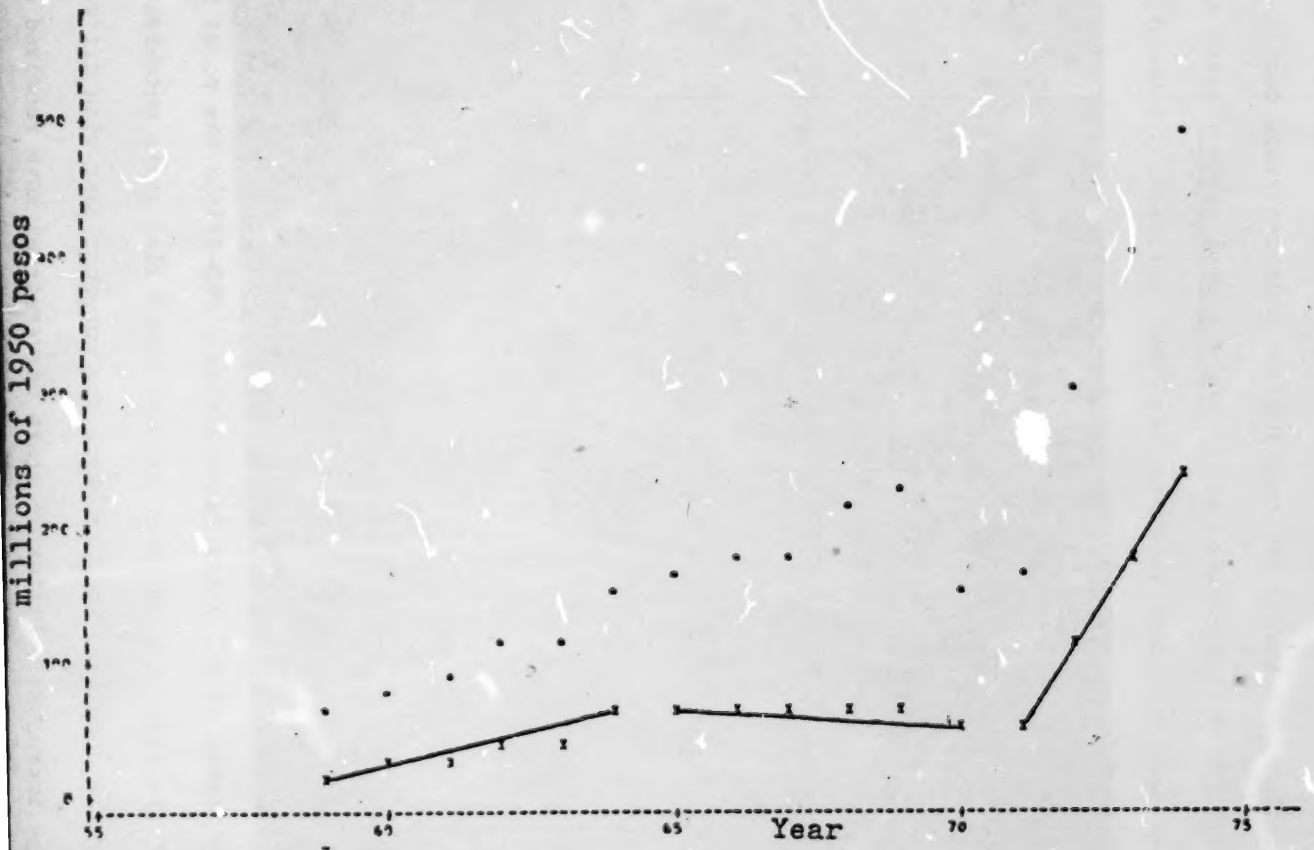
	López Mateos*			Díaz Ordaz						Echeverría				
	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Higher Education / Federal Budget	1.8	2.2	2.2	1.7	2.2	2.0	2.3	2.0	2.3	2.7	2.7	2.8	3.4	3.1
Higher Education / Education	14.6	15.9	16.6	15.6	15.2	15.8	16.5	14.4	16.4	16.9	18.1	19.7	23.1	21.4

Source: Secretaría de Hacienda y Crédito Público, Cuenta Pública, 1962-1975.

* Note: Hacienda computed categories differently before 1962, obviating meaningful comparisons.

FIGURE 1

TOTAL AND FEDERAL FUNDS TO STATE UNIVERSITIES 1959-1974



* = total; X = federal

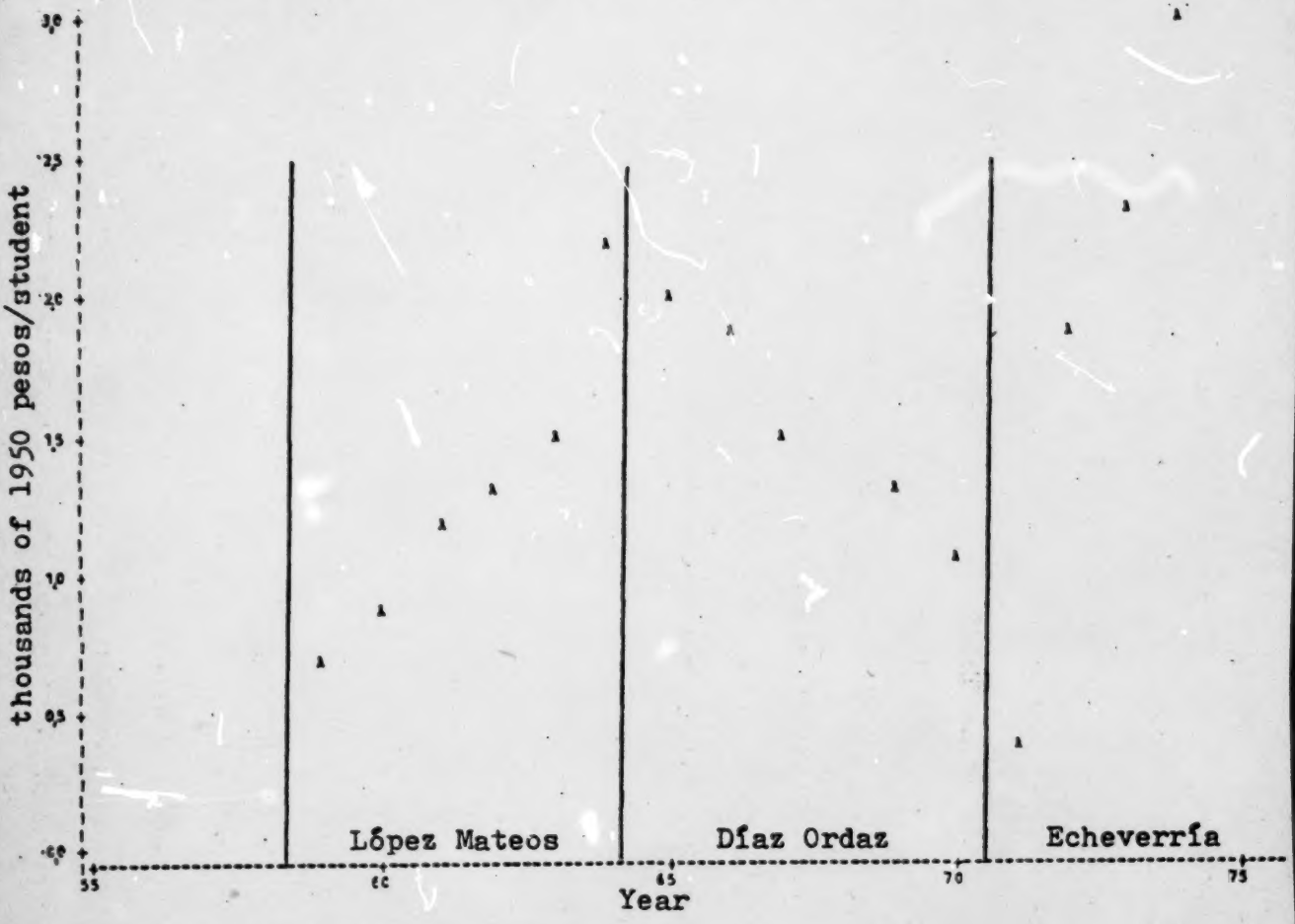
Sources: ANUIES. SEP, Universidades estatales (México: SEP, 1975), pp. 1-

may be some broad continuity even across administrations, but any hiatus hurts, and the definite limits to variability in Mexico lie within administrations. I should add that Mexican politics stand out in comparative perspective for what Mexicans call borrón y cuenta nueva ("erase and start again") -- each President initiates his "own" policies. It would be interesting to see how public universities elsewhere fare as governmental leadership changes hands, or perhaps as "zero-based budgeting" is implemented.

(3) State universities individually do not automatically enjoy security when they collectively do. "Macro" stability could obscure "micro" fluctuations. The picture is mixed in Mexico. There is substantial cross-sectional variation in income in any given year, but percentage growth usually has followed similar patterns from university to university. One can argue that there is a certain impartiality in raising percentages similarly to different universities, or, alternatively, that the effect is to aggravate past prejudices. In any case, percentage increases in federal funds have been remarkably similar to different universities. Extending López Mateos' 1959-1964 growth line for each state university, none recovers its pace until 1972, and all but one recover by 1973. Almost every case follows the linear patterns for federal funds to state universities collectively. Of course, an administration is hardly supportive of autonomy when it applies an indiscriminate freeze to all state universities (1965-1971); the point here is only that the federal government has not controlled state universities by rewarding the compliant and punishing the non-compliant with different percentage increases. Different state universities have received different increases from their state governments, but (because funds are given to each university by a different government) these increases are less readily

FIGURE 2

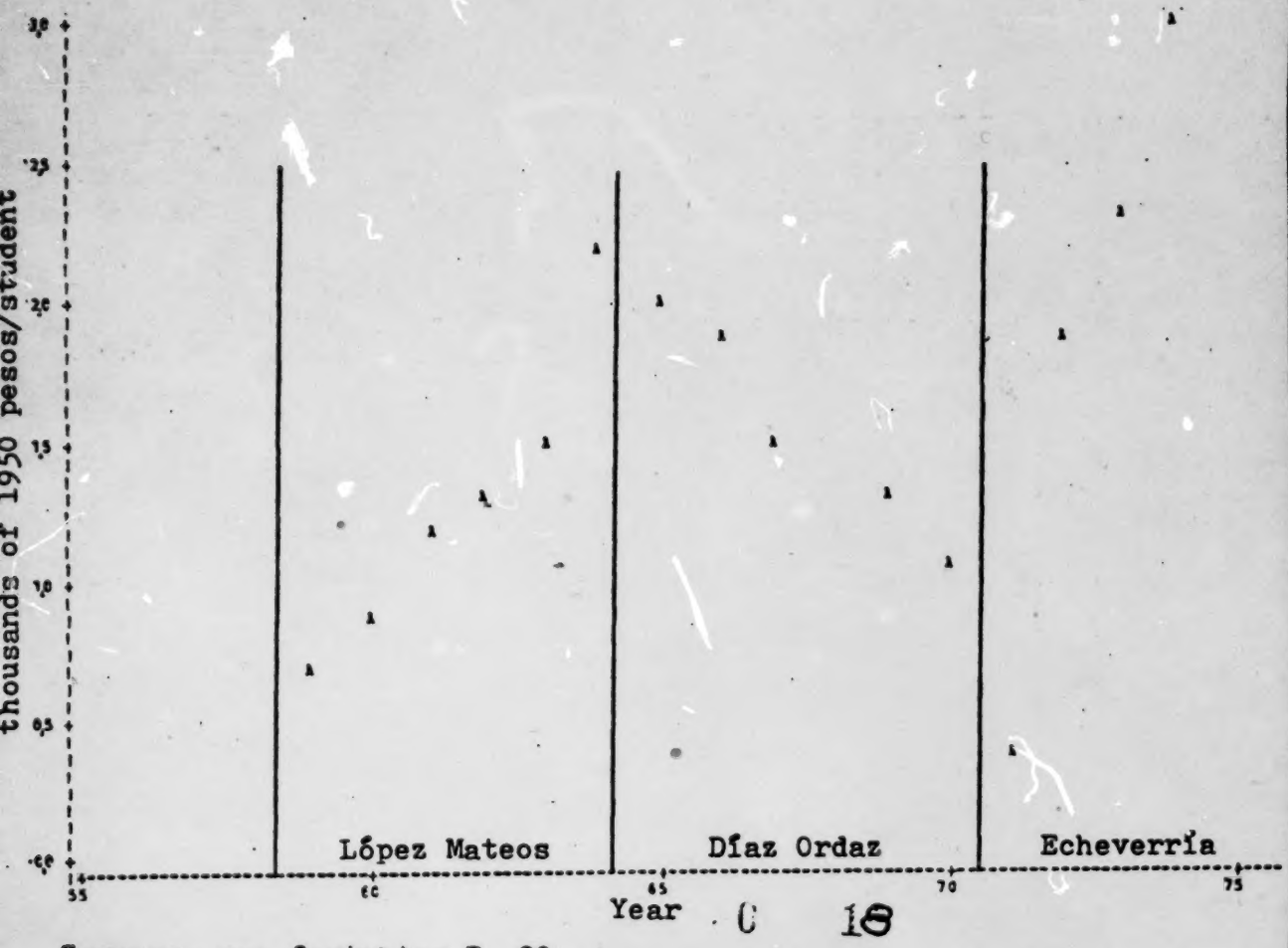
FEDERAL FUNDS PER STUDENT TO STATE UNIVERSITIES 1959-1974



Sources: see footnotes 7, 20

FIGURE 2

FEDERAL FUNDS PER STUDENT TO STATE UNIVERSITIES 1959-1974



Sources: see footnotes 7, 20

TABLE 2

PERCENTAGE OF FEDERAL FUNDS TO UNAM

	López Mateos		Díaz Ordaz		Echeverría	
	1959	1964	1965	1970	1971	1975
UNAM / FEDERAL BUDGET	.7	.9	.7	1.1	1.3	1.4
UNAM / EDUCATION	6.7	7.0	6.6	7.7	8.1	8.7
UNAM / HIGHER EDUCATION	*	42.3	42.0	46.8	48.2	41.3

Source: Secretaría de Hacienda y Crédito Público, Cuenta Pública, 1959-197

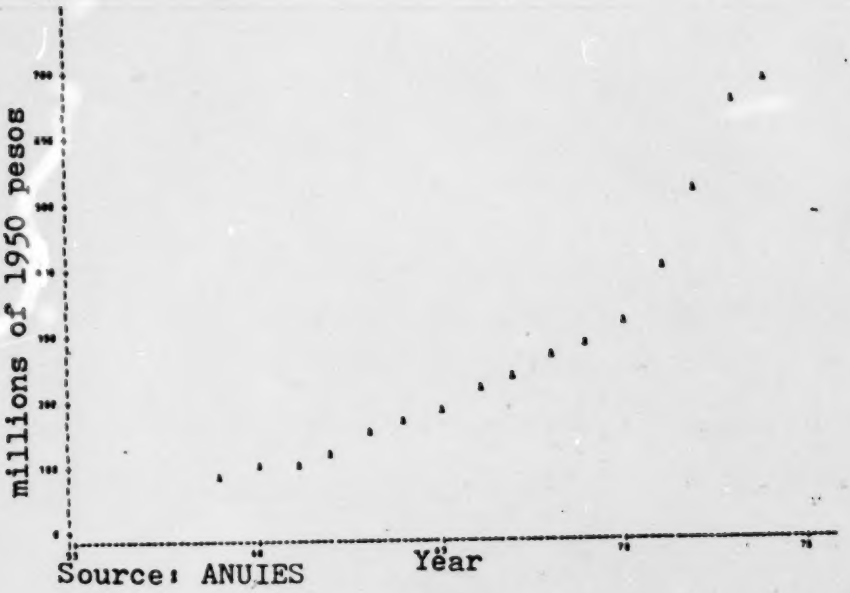
*Note: Higher education computed differently before 1962.

the rapid growth of the state university network, UNAM's stable share of the higher education budget is remarkable. As that share decreases so will UNAM's relative strength: will UNAM become less immune to government control? A major university's share of the higher education budget could be an important measure cross-nationally, given the tendency of many contemporary governments to bypass, thereby weakening, their established autonomous universities. Such a policy has had only a limited, recent effect in Mexico, but warrants continued scrutiny.

Perhaps the most basic measure of UNAM's economic independence from government manipulation is the steady climb of its inflation-controlled federal funds (or total income), over the last three administrations. Figure 3 graphically depicts this strength. The pattern contrasts to Figure 4 depicting the National Polytechnic Institute's income. The IPN is Mexico's second biggest institution of higher education, but our main interest lies in the fact that it is directly run by the government. While the IPN also shows fairly constant growth, its pattern is more erratic than UNAM's. The University's income is again more secure when we check for funds/student growth (see Figures 5 and 6).

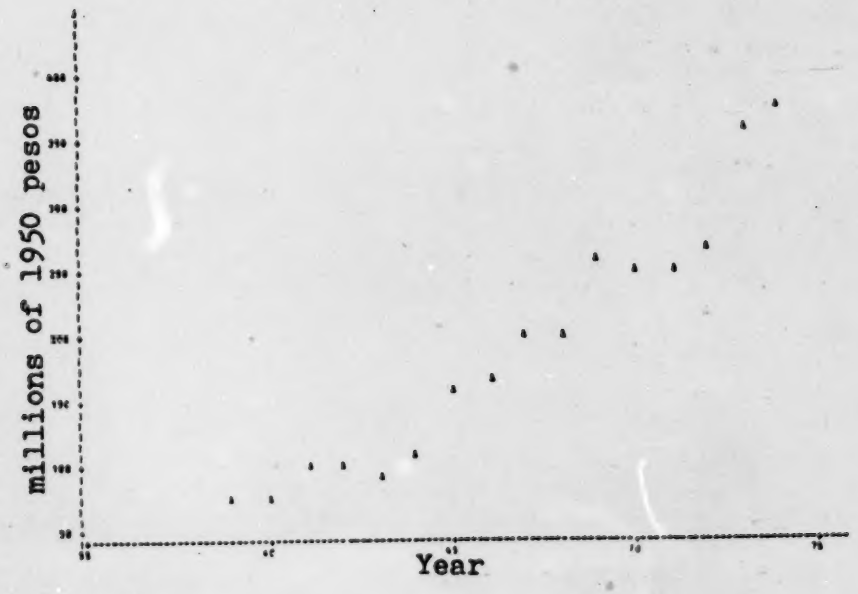
UNAM's strength is reflected even in relation to the "events of 1968," Mexico's most violent conflict since the Revolution. UNAM was unquestionably in the forefront of the movement so brutally repressed by the government. Data show that UNAM's funds continued to rise throughout the period of government-university confrontation in which federal funds were frozen to the state universities. There is only one clear statistical indication of government financial punishment: 1969 marks a decline from 1968 in the funds per student ratio. By that measure, however, subsequent financial punishment was greater

FIGURE 3
FEDERAL FUNDS TO UNAM 1959-1974



Source: ANUIES

FIGURE 4
(FEDERAL) FUNDS TO THE IPN 1959-1974



Source: ANUIES

FIGURE 5

FEDERAL FUNDS PER STUDENT TO UNAM 1959-1974

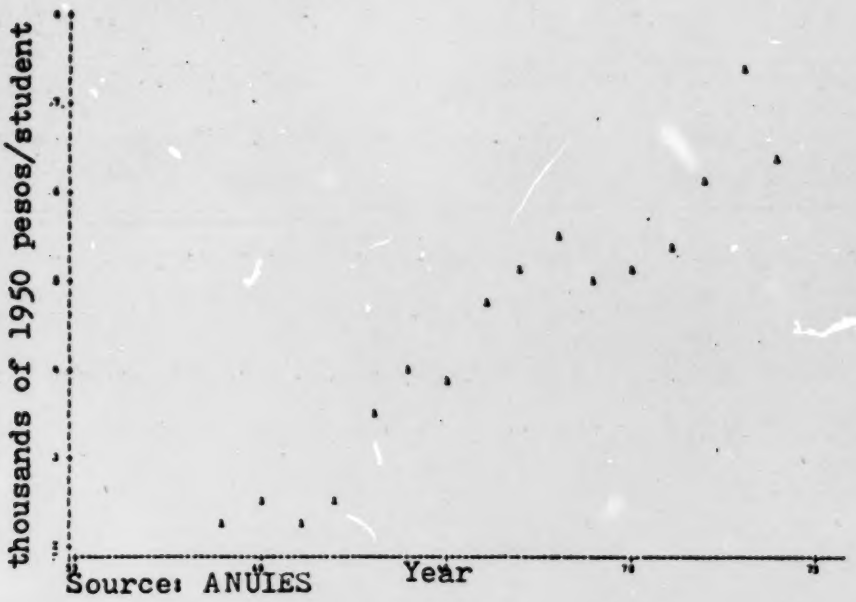
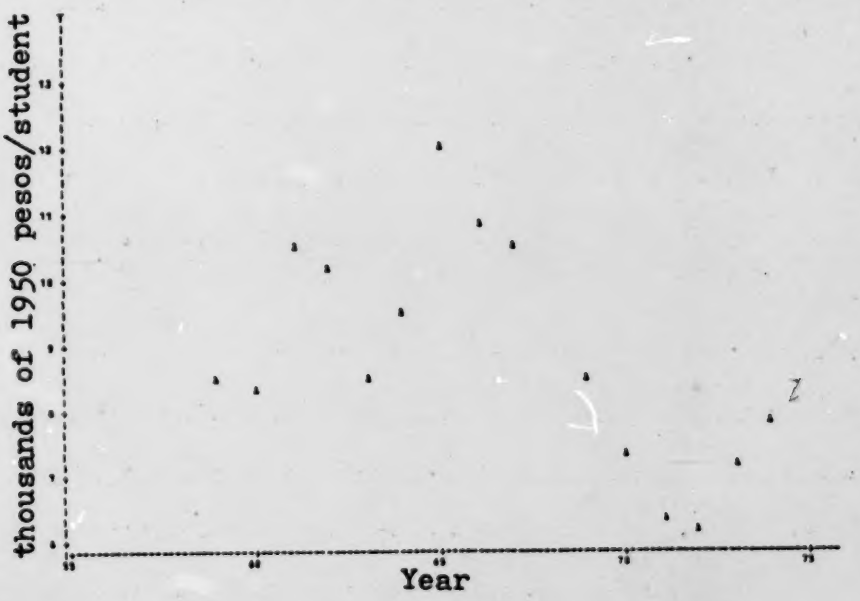


FIGURE 6

(FEDERAL) FUNDS PER STUDENT TO THE IPN 1959-1974



Sources: ANUIES; IPN

in the IPN, also seriously involved in the events. UNAM did not escape punishment, as full autonomy would have it, but it bore relatively little financial penalty given the unprecedented nature of its battle with the government. And again, funds per student is a very harsh test of financial continuity and growth.

UNAM depends on government money, but manifests great insulation from control via erratic funding. Many measures of limited fluctuations suggest the viability of economic autonomy in Mexico's public universities; these indications are especially strong in UNAM.[15]

Determinants of Funding Levels

Bargaining

Thus far we have observed a university which distributes its own resources relatively free from variable government responses. There remains the possibility that public universities escape fluctuations because they are complying more or less equally and continuously with government criteria. A key question for comparative research on autonomy is what factors determine funding levels.

Knowledge of the government-university bargaining process can provide strong insights. The university's power to defend its interests may be reflected there. Without any attempt here to do justice to the richness of the Mexican process, I want to highlight some points that could be examined in other nations as well. In the absence of criteria which are binding on the government, we look for the extent of give-and-take bargaining as opposed to simple government imposition. There are many indications in Mexico that

something is indeed at stake, that the results are somewhat uncertain. Not only do universities adopt varying strategies to get more, but the government employs strategies to bargain university requests downward: neither side disdains the process as pointless. Naturally, it is hard to prove the extent to which negotiations count or are merely nice formalities masking undiluted government power, but there are at least two observable factors which verify extant opinions that the process counts: university strengths and university access to governmental power.

(1) University strengths. Though a public university may be dependent on its government for funds, that dependency can be greatly reduced if the government is also dependent on the university. The reciprocity of dependence has been overlooked too often. I believe that the Mexican government depends on its public universities, especially the National, for social order, political legitimacy, middle-class political support, political recruitment, manpower, and scientific research. Different governments may depend on their universities for different purposes, or they may fully control the internal governance of the university, or they may bypass them by creating other institutions of higher education; but I doubt that the strengths of Mexico's public universities are unique.

Consider just one factor, student body growth, and how the university forces the government to increase funds. One provincial rector recalls the following interchange: He points to a great population increase; the government offers little financial increment. He says he needs more; the government says "there is no more." He gets tough, "Okay, I'll close my doors on X number"; "Well, there is very little money." And then the trump card: "Okay, I'll close my doors... and tell them to bang on your door."[16] The government

fears disorder, it fears charges of anti-democratization, and it fears the loss of support of an angry middle class (which dominates enrollments). Once the university itself allows in more students -- and in Mexico it has almost complete control over admissions -- then the government is faced with the near necessity of providing more funds to expand facilities.

(2) University access to governmental power. Access tells us something about the claim the university has on the government. It is a general rule of interest-group politics that the more powerful tend to receive "higher" consideration.[17] Access may be more directly related to the strength than the autonomy of an institution; greater strength should, however, pay dividends in greater security from government manipulation. Of course, high access in the Ministry of Education is not equivalent to high accesss in a more powerful ministry like Treasury. Comparative analysis could probe the effects of differential access. What happens when universities deal with prominent officials outside Education, a special Ministry of Higher Education or a special department within Education, or simply the general Education authorities? Does the university deal with important policy-makers or lower ministerial functionaries? The contrast between the National University and the provincial universities highlights the implications of the access issue very well.

UNAM's prerogatives are imposing and revealing. Historically, the University has not had to deal with the Ministry of Education; it has not been considered to be "under" any external educational authority. UNAM's muscle is such that it bargains "politically" at the top rung of government power, often directly with the President himself, not "technically" within the bureaucracy. Such stature appears to be rather exceptional from a cross-national

perspective. State universities do not receive similar high-level treatment. Carrying less strength into negotiations, they have to deal with lesser officials. It is interesting to observe how Echeverría, concerned for reconciliation with these universities which suffered under his predecessor's freeze, upgraded their access. He created a special department, albeit within the Ministry, to handle funds for state universities, and appointed as director one of their heroes -- a rector who had stood up to the previous President's repressive policies. The director enjoyed personal contact with Echeverría, side-stepping his formal organizational subordination to the minister. Federal funds to state universities shot up 850%, 1971-1975.[18] My point is less that high access may gain more funds than that it reflects university strength. Access underscores the basic point that, when a university has a strong bargaining position, the government's authority to set funding levels is limited. Do Mexico's public universities beg, cajole, or demand? They do some of each, UNAM mostly demanding.

Testimony on Criteria

It is useful, if somewhat arbitrary, to separate "coercive" from "non-coercive" determinants of the funds. Coercive ones might include university performance: distribution of students by career, type of research, curricula innovation, share of university budget devoted to teaching, research or administration, drop-out rates, and levels of violence are examples. Non-coercive determinants are those which do not depend directly on university performance. These could include last year's funding level, population size, amount of state government funds, and attempts at redistribution to poorer universities. Coercive factors should be more important if the

government pressures the university via funding levels.

One expects that university testimony would allege such control while official testimony would deny it. There is certainly some such propensity in Mexico. But there are universitarios who criticize the lack of control, and some government people -- especially in Treasury -- tend to overstate the degree of "vigilance." Education officials are properly ambiguous, proclaiming that they "plan" and "coordinate" on the basis of "criteria" which "promote change," but do not "give funds conditionally" or "control." Others acknowledge that certain aspects of university performance may influence funding levels. Most painted pretty much the same picture that many independent experts did. In fact, there is considerable, though not complete, agreement that non-coercive factors are more important than coercive ones. Pablo Latapí, Mexico's most respected educational expert, hypothesizes that concrete performance criteria have begun to assume a very junior partnership alongside student growth and ad hoc political considerations. But he adds that it is impossible to know the exact degree of control involved.[19]

I believe that the ambiguity of official responses probably stems from real ambiguity as to whether university policies are used as criteria. The bargaining process is indeterminant. Government negotiators press for what they can get without direct coercion. If a university speaks of creating new careers it makes a good impression; perhaps officials applaud this and suggest related measures. If a university suffers persistent high drop-out rates, government officials might indicate that they will not cut funds but that they expect to see rates reduced. Officials push different criteria with varying ardor. Presumably, totals do differ according to the ambiguous criteria, but only at times and not greatly. The attempt here will be to

explore statistically a few of the potentially most powerful criteria. Data deal with the state universities; UNAM has been more autonomous by all other measures, so probably it is more impervious to coercive criteria imposition. The methods of comparison developed here are more applicable to fairly similar universities than to universities which are highly dissimilar.

Criteria: Population and Careers

Many nations which control their universities have imposed quotas on career distributions. Chile and Argentina are among the starkest recent Latin American examples. The Mexican government permits students to choose freely -- despite the fact that it is quite unhappy with their choices. A degree of government control would at least reward universities with "more favorable" distributions and punish those with "less favorable" ones. Alternatively, autonomous universities might receive funds according to population, regardless of distribution.

There is an extant six-part career categorization which is accepted for Mexican higher education.[20] Analysis of government statements and needs reveal clear preferences among these, especially under Echeverría. Any attempt to establish an exact 1-6 order is a bit arbitrary, but most government and university people alike agree that this is, at the very least, a strong approximation. What simplifies analysis is that the social and administrative sciences comprise such a high percentage of the state university population and are the most clearly disfavored. Proceeding from the least desirable, the six categories are:

(1) Social and administrative sciences: (social sciences, law, administration, accounting) the only category which the government definitely con-

siders unfavorable, due to (a) saturation, (b) weak association with immediate needs of economic development, (c) strong association with political criticism.

(2) Humanities and education: (education, philosophy, letters, history and geography, fine arts, languages) considered in much the same way as the first category except that it is presently very small in Mexico, so that increments may be acceptable.

(3) Medical sciences: (medicine, dentistry, nutrition, nursing) favored for its contribution to social development but disfavored for attracting excessive traditional demand bent on practice in saturated modern centers, ignoring needs of less developed regions.

(4) Engineering and technology: (various kinds of engineering, architecture, design) very favored for its "applied" orientation, though tarnished by the traditional and over-populated sub-categories of architecture and civil engineering.

(5) Natural and exact sciences: (mathematics, physics, chemistry, biology, geology, ocean sciences) despite orientation toward knowledge for the sake of knowledge, very favored for its importance to economic development, and its presently limited enrollments.

(6) Agricultural sciences: (agronomy, veterinary medicine) the most exuberantly favored area under Echeverría for its relation to economic and social development and possibly to rural tranquility, but previously neglected or associated with medical sciences.

A recent Ministry publication groups state universities according to career changes realized 1967-1973.[21] It finds seven basic patterns. These are compound patterns in that they refer to increases and decreases in more than one career area. Nevertheless, we can rank these in seven ordinal

categories based on government preferences. The central concern is to see the effects of career changes 1967-1973 on 1974 funds. Since career enrollments are known in advance of the school year, and since these changes refer to a period starting in 1967, we also want to see effects on 1973 funds. The 1975 figures are included to check for "lag" in the dependent variable (funds). The hypothesis based on government control is that universities undergoing career changes in accord with government preferences gain greater increases.

Comparisons of group means turn up interesting findings. The results shown in Table 3 belie the notion of differential government funding based on career changes. The hypothesized 1-7 order is not approximated in any year. The correlation between hypothesized ranks and total funds is low (Spearman's rho = .32) as is the correlation with federal funds (Spearman's rho = .46)[22]

Though indications of linkage between career changes and financial increments are quite limited, the compound categories might obscure some pattern. Therefore, I disaggregated the government's seven categories, forming now fourteen categories.[23] The advantages of the government's categories were precisely that they were the government's own and that most categories embraced three or four universities. Nevertheless, the new results provide useful confirmation of the seven-part test. Again the hypothesized category order is not approximated in any year, and the correlations between career changes and average income increments are insignificant (Spearman's rho = .15 for total and .21 for federal funds).

The preceding data deal with career changes and financial growth under Echeverría. Given the government's disposition not to punish for past sins, career change seems a more likely determinant of funding level than does cross-sectional career distribution; likewise, nearly all testimony points to increased

TABLE 3

PERCENTAGE INCREASE IN FUNDS ACCORDING TO CAREER CHANGES

Career Changes		Total Income			Federal Funds			Rank Order		
		1973	1974	1975	1973	1974	1975	$\bar{x}_{tot}$	$\bar{x}_{fed}$	hyp
All state universities		57%	52%	49%	71%	73%	57%			
↑ agricultural ↓ social & administrative	(N=3)	28	62	44	82	111	47	5	2	1
↑ applied or applied & medical ↓ social & administrative	(N=4)	51	39	63	62	59	62	3	5	2
↑ medical ↓ social & administrative	(N=4)	135	37	65	97	57	69	2	3	3
↑ miscellaneous ↓ soc. & admin. ↑ humanities or ↓ miscellaneous	(N=2)	88	82	60	108	86	94	1	1	4

-20a-

TABLE 3 Continued

Career Changes		Total Income			Federal Funds			Rank Order		
		1973	1974	1975	1973	1974	1975	$\bar{X}$ tot	$\bar{X}$ fed	hyp
No significant change	(N=6)	37	60	39	54	77	48	6	6	5
↑medical or ↑applied ↓applied or applied & soc. & admin. ↓agricultural	(N=3)	26	45	29	43	85	34	7	7	6
↑social & administrative ↓any of medical, applied or humanities or miscellaneous	(N=4)	57	49	42	65	62	69	4	4	7

$\bar{X}$ tot = average total; $\bar{X}$ = average federal; hyp = hypothetical

Spearman's rho (total) = .32
(fed'l.) = .46

Sources: SEP, Prediagnóstico, pp. 21-22; SEP, Las universidades estatales, pp. 1-2.

-20b-

(though still very limited) propensity to tie funds to concrete criteria under Echeverría. The results are thus very meaningful. Still, it is prudent to pursue possible career-funding links over three administrations by correlating career distribution with funds received within each given year, 1959-1974.[24]

Student population alone -- regardless of career distribution -- explains 91% of the variance in the total and 85% in the federal funds. Allocations depend overwhelmingly on a non-coercive criterion. Alternatively, one could choose to focus on populations in certain careers as causal: numbers in the social and administrative sciences can explain 72% of the variance in the federal funds while the medical sciences can explain 26%, engineering and technology 92%, the natural and exact sciences about 83%; the two other career areas show only slight (negative) correlations with funding levels. But it is necessary to have a theoretical model in mind before analyzing the data, and the most plausible one, based on widespread testimony and on the above tests involving career and funding changes, is that population is the first factor considered by government officials. There is no statistical proof of this, however. It would be statistically but not logically valid to assert that the natural and exact sciences explain 83% of the federal funds, and then to control for them to see the residual effect of total population. The most reasonable decision -- endorsed by every government, university, and independent expert with whom I spoke -- is to consider total population the primary causal determinant, and then to investigate the residual impact of different career areas.

There are two principal empirical findings: enrollments in social and administrative sciences do not have a negative impact (insignificantly positive on total funds and insignificantly negative on federal funds), but enrollments in engineering and technology have a definite, positive impact (explaining 54%

and 49% of the residual total and federal amounts, respectively). More money for engineering and technology could be a reward or simply could reflect the greater objective cost of that career area. Given that the social and administrative sciences is the career area most definitely disfavored by the government (and that its objective cost is relatively low), the fact that it has no independent effect is powerful evidence that the government does not punish via funding levels. Art, medicine and agronomy have negative effects, while the natural and exact sciences have a positive one. But mostly it is the positive effect of engineering and technology which, countering the evidence from the social and administrative sciences, indicates that "desirable" career distributions can gain extra funds. In any case, the effects of career distribution are marginal effects.

In sum, financial levels depend primarily on university population. This variable alone can statistically and reasonably explain about 90% of the funds. Combining these cross-sectional findings correlating population and funds with those on population growth and funding growth, the conclusion is that the government basically allocates according to a non-coercive criterion. Mexico's public universities do better to follow student demand rather than to initiate career changes geared to please the government if they may diminish that demand. A markedly non-coercive relationship, this. An analogy might be drawn to the practice, increasingly common in more developed nations, of tying funds to computerized formulas based on class size.

Criteria: Disorders

Probably no aspect of university behavior suggests itself more readily as a determinant of government funding than disorder. Governments look askance

at events which disrupt the flow of professionals or upset civil tranquility. The first signs of trouble on U.S. campuses elicit fear for the state legislatures' fiscal response. Democratic as well as authoritarian regimes are likely to punish violence with a degree of tight-fistedness. Mexico is no exception. One need only look at Díaz Ordaz's five-year federal freeze to the state universities surrounding the events of 1968. The degree to which UNAM remained immune is a tribute to its strength and autonomy. My assumption is that great violence has an adverse effect on universities which rely on government funding. Rarely, however, does disorder reach violent proportions. Comparative analysis might seek to discover the level at which disorder brings financial retribution in different countries.

I was fortunate to obtain a copy of a secret government report on violence in each state university in 1973.[25] It provides a rare opportunity to check for a relationship between the government's actual <u>perception</u> of the degree of disorder and its subsequent allocations. The report is based on content analysis. It assigns one of four disorder level values to each university in each month from April to December, 1973. "Tranquil" represents the absence of disruptive acts; "agitated" represents confrontations (disputes, petitions) which do not thwart university functions; "conflictual" refers to confrontations (protests, demonstrations, strikes) which do disrupt university functions; "violent" refers to conflictual confrontations which occur in a "context of physical or moral aggression."[26] I assigned monthly values of 0-3 respectively for these categories; a university's disorder score over nine months could range from 0-27. Next, I grouped the totals into five categories: (1) "no reported violence," score 0; (2) "fairly tranquil," score 1-9; (3) "agitated," score 10-14; (4) "conflictual," score 18-22; (5) "violent," score 24-27. How

does each group fare in funding increases in 1973, 1974 and 1975?

Again, comparisons of group means give interesting results. As Tables 4 and 5 show, in no year do either total or federal increases approach a 1-5 ranking from no reported disorder to violent. Further, their three-year average ranks do not show significant positive correlations with the hypothesized order (Spearman's rho = .30 for total and -.80 for federal funds).

Focusing on particular years, 1974 figures are probably the most important since the data refer to 1973 events. Total income shows remarkably similar growth rates in each of the five disorder categories in 1974. Both total and federal funds also show similar patterns when we lag one year, to 1975. It is only in 1973 that there is considerable funding variability across disorder categories. Variability for 1973 should not be attributed to disorder levels since this variability is random, not directional 1-5, and since we lack systematic data on government perceptions of 1972 disorder by which to assess 1973 categories. Random variability for 1973 actually seems to strengthen the findings on the similarity of financial increases across disorder categories in 1974.

Let us now examine the disorder categories more closely. Universities with no reported disorder receive only average increases in total income and receive the least in federal increases in 1974 and 1975. In fact, the universities which do best are in the conflictual category (with the fourth greatest amount of disorder)! It is the only category which ranks consistently above the mean for federal increases. (No category ranks consistently below the mean). Violent universities do finish worst in total increases for 1973-1975 overall, but they practically hit the mean in 1974 and their federal increases are almost average.

TABLE 4

PERCENTAGE INCREASE IN TOTAL INCOME
ACCORDING TO DEGREE OF VIOLENCE

	1973	RO	1974	RO	1975	RO	$\bar{X}$RO	HRO
All state universities (N=29)	57%		52%		49%			
No reported disorder (N=3)	59	2	59	1	49	3	2	1
Fairly tranquil (N=5)	34	4	46	5	44	4	4	2
Agitated (N=8)	42	3	54	2	52	1	3	3
Conflictual (N=10)	90	1	52	3	51	2	1	4
Violent (N=3)	27	5	51	4	38	5	5	5

Spearman's rho = .30

RO = Rank Order; $\bar{X}$RO = Average Rank Order; HYO = Hypothesized Rank Order.

Sources: Las universidades estatales de México 1973; SEP, Las universidades estatales de México 1970-1975, pp. 1-2.

TABLE 5

PERCENTAGE INCREASE IN FEDERAL FUNDS
ACCORDING TO DEGREE OF VIOLENCE

	1973	RO	1974	RO	1975	RO	$\bar{X}$RO	HRO
All state universities (N=29)	71%		73%		57%			
No reported disorder (N=3)	85	2	57	5	45	5	5	1
Fairly tranquil (N=5)	37	5	66	3	61	2	3	2
Agitated (N=8)	70	3	59	4	49	4	4	3
Conflictual (N=10)	95	1	88	1	69	1	1	4
Violent (N=3)	41	4	83	2	49	3	2	5

Spearman's rho = -.80

RO = Rank Order; $\bar{X}$RO = Average Rank Order; HYO = Hypothesized Rank Order.

Sources: See Table 4

To explore further the effects of high levels of violence, we can analyze data on the three state universities (Puebla, Sinaloa, Nuevo León) which suffered probably the greatest violence in 1972.[27] There was little retribution, especially in the first two. The most interesting case, however, was Nuevo León where total income fell 23% in 1972 itself, while federal increases practically matched the mean for state universities. In the critical year, 1973, federal increases exceeded the mean, while total income shot up at more than double the mean. Maximum levels of violence appear to have caused only temporary negative effects on income in recent years.

The opposite relationship merits closer scrutiny: have greater levels of violence attracted more funds? Tables 4 and 5 indicate that the answer probably is no for total funds (Spearman's rho = .30), but probably yes for federal funds (Spearman's rho = -.80). Even federal funds, however, show a consistently high or consistently low yearly gain only in the conflictual category. Though allocations generally appear to rise independently of disorder levels, it is intriguing that conflictual universities tend to do well. If <u>levels</u> of disorder cannot explain increments perhaps <u>types</u> of disorder can help.

Fortunately, the government's report gives a monthly description of university disorder, including its targets, by which we can classify disorder types. "Academic facilities" refers to demands for expanded physical resources (e.g., laboratories); "academic reform" refers to demands for changes or no changes in academic policies (e.g., block imposition of admissions exams); "university politics" refers to intra-university struggles over political control (e.g., rector selection); "local politics" refers to university, generally student, clashes with local or state government (e.g., over public transpor-

tation prices); "national politics" refers to student protest against the national regime (e.g., commemorations of 1968).

Universities usually experience a combination of types. It is possible to hypothetize a 1-5 order for federal financial responses based on the assumptions that externally-oriented disorders, especially nationally-oriented ones, would lead to greater retribution, intra-university disorders would be less damaging, and petitions for better facilities might even stimulate funding. The data presented in Table 6 test these assumptions. They find no directional relationship between type of violence and federal increases (Spearman's rho = -.18; it is -.15 for total increases).

Final statistical confirmation of the lack of disorder-funding links comes from cross-tabulating amount with type of disorder. Even exploring inside the possibly intriguing conflictual and violent ca egories, one finds no meaningful correlations. While cross-tabulation categories lack sufficient cases to prove anything themselves, they help assure that no patterns are hidden by treating amount and type of disorder separately. The government does not reward tranquility and punish conflict, at least not consistently and significantly.

The above data on government perceptions of violence are confined to a limited time span under an administration probably preoccupied with reconciliation. But they indicate that public universities involved in perhaps the most odious behavior, from the government's point of view, may still escape severe financial punishment from their chagrined source. It would be interesting to see how typical our findings are.

Investigations of career distributions and university disorders have raised serious doubt concerning the degree to which "coercive" factors affect financing

TABLE 6

PERCENTAGE INCREASE IN FEDERAL FUNDS ACCORDING TO TYPE OF VIOLENCE

	1973	RO	1974	RO	1975	RO	$\bar{X}$RO	HRO
All state universities (N=29)	71%		73%		57%			
No reported violence (N=3)	85	3	57	7	45	7	5	1
Academic reforms and facilities (n=1)	52	6	56	8	58	3	6	2
University politics (N=4)	105	1	64	5	51	5	3	3
Local politics-University politics-Academic facilities (N=1)	44	8	60	6	24	9	8	4
Local politics-University politics-Academic reform (N=2)	46	7	53	9	33	8	9	5
Local politics-University politics (N=7)	83	4	75	3	60	2	2	6
Local politics (N=4)	60	5	96	2	58	4	4	7
>3 types (N=2)	89	2	114	1	40	1	1	8
Local politics-University politics-National politics (N=5)	42	9	65	4	50	6	7	9

Spearman's rho = -.18

RO = Rank Order; $\bar{X}$RO = Average Rank Order; HRO = Hypothesized Rank Order.

Sources: See Table 4

in Mexico. The strongest determinants by far are last year's funds and population. The importance of these non-coercive factors puts in perspective the limited effects of both coercive factors and political capriciousness. If control occurs, it occurs on the margin.[28] We would need more sensitive indicators to measure these effects more exactly. The central goal here has been to show that they are indeed marginal.

Summary and Implications

The purpose of this article has been both procedural and substantive. It has suggested a number of ways in which we can empirically study the degree of government financial control over universities. It has shown how such control may have very important limits. And it has initiated substantive work by applying original methods to the Mexican case.

While the Mexican government derives certain power from its near monopoly on funds, that power is decidedly circumscribed. This conclusion runs counter to prevalent thinking on government-university relations (and on Mexican politics). Strong limits to the government's financial power appeared in our analysis of the intra-university distributory process, funding fluctuations, and funding criteria. The university itself distributes the lump-sum allocation it receives, without need to account to the government. It can almost always count on an income at least as great as last year's; it usually can count on fairly steady growth in inflation-adjusted funds. Financial security is further indicated by the stable or growing shares held by higher education, public universities collectively, and public universities individually, in the national or education budgets. UNAM is the most secure from erratic fluctuations, a reflection of its superior strength and bargaining

power. The great bulk of the public universities' funds are based on last year's funds and university population, not government assessment of university performance.

This paper has not focused on the roots of the university's strength, but it has pointed to at least three major aspects worthy of cross-national consideration. (1) The university possesses a degree of specialized academic/administrative expertise which makes it difficult for the government to penetrate inner-workings too deeply; (2) the university-government relationship is a mutually dependent one in which the university enjoys considerable interest-group power; (3) the budgetary process is an incremental one, promoting a great degree of economic security.

Most importantly, we can now set a preliminary agenda for comparative research on the extent of government financial control. We should consider both direct indicators (e.g., who distributes the budget) and indirect ones (e.g., level of access). Among the important indicators of university independence from government control are:

Distribution

--receipt of one lump sum (rather than separate grants to constituent parts of the university)

--intra-university preparation and distribution of the budget

--(absence of) accountability

Funding Levels

--statutory guarantees on funding levels

--steady, predictable growth in annual inflation-adjusted funds

--stability or growth in the financial share of higher education as a percentage of total education (or the total budget)

--stability or growth in funds for autonomous universities compared to funds for non-autonomous institutes

Funding Criteria

--level of university access to government executives and bureaus

--degree of bargaining (rather than governmental imposition)

--funds based on concrete criteria not tied to government approval of university policies.

The appropriate cross-national questions will vary according to the particular nature of government-university relations and the availability of data. But the relationship between government financing and control can be subjected to comparative empirical analysis. And the case of Mexico suggests that the "Achilles Heel" of public university autonomy may not be so vulnerable after all.

Footnotes

[1] Burton R. Clark, "The Changing Relations Between Higher Education and Government: Some Perceptions From Abroad." Paper delivered at the In-service Education Program Seminar, Education Commission of the States, Preceding the 24th Annual Meeting of State Higher Education Officers, Big Sky, Montana, August 2, 1977, p. 22.

[2] Luis Manuel Peñalver, "Autonomía universitaria y planificacíon," in Autonomía, planeación, coordinación innovaciones: perspectivas latinoamericanas, ed. Ana Herzfeld, Barbara Ashton Waggoner and George Waggoner (Lawrence, Kansas: University of Kansas, 1972), p. 8.

[3] Barbara Burn, Higher Education in Nine Countries (New York: McGraw Hill, 1971), chapters 3, 5, 9, 10, passim.

[4] Interview with Manuel Pérez Rocha, November 14, 1975, Mexico City.

[5] See George R. Waggoner, "La autonomía universitaria y la planeacíon nacional," in Autonomía, planeación, p. 193. The 1940 Cuban Constitution guarantee of 2½% of the national budget for the University of Havana apparently was not honored. Luis Boza Domínguez, La situacíon universitaria en Cuba (Santiago, Chile: Editorial del Pacífico, n.d.), pp. 63-64.

[6] Burton R. Clark and Ted I. K. Youn, "Academic Power in the United States" (Washington, D.C.: The American Association for Higher Education, 1976), pp. 35-36.

[7] These are 1975 figures drawn from UNAM's Statistics Department and from the Ministry of Education (SEP), Las universidades estatales de México 1970-1975 (Mexico City: SEP, 1975), p. 4. Unless otherwise specified, government budgetary data come from Treasury's Cuenta Pública, and university funding data come from the Asociación Nacional de Universidades (ANUIES) and the Ministry's Universidades estatales. The extent of a state role independent of the federal government is debatable: it does exist but far less than in the U.S.

[8] An excellent recent example is Susan Kaufman Purcell's The Mexican Profit-Sharing Decision: Politics in an Authoritarian Regime (Berkeley: University of California, 1975).

[9] Government appointment of university officials would make any "university" decision less autonomous. Most of Mexico's public universities, including UNAM, select their own personnel.

[10] Two of the best known works on budgetary incrementalism are: Aaron Wildavsky, The Politics of the Budgetary Process, 2d. ed. (Boston: Little Brown, 1974); Richard F. Fenno, The Power of the Purse (Boston: Little Brown, 1966).

[11] Interview with Roger Díaz de Cossío, February 27, 1976, Mexico City; see, for example, Donald F. Wheeler on Japan, "The Structure of Academic Governance in Japan," a working paper published by the Institution for Social and Policy Studies, Yale University, New Haven, Connecticut, 1976, p. 26.

Footnotes--continued

[12] Missing cases, 1959-1975, in my calculations concerning state universities result from missing data and the non-existence of many universities in the earlier years.

[13] Historical data on UNAM come from José Attolini, Las finanzas de la universidad a través del tiempo (Mexico City: UNAM, 1951), pp. 70, 83.

[14] These lines simply connect first and last years; an only slightly tighter fit would result from using "least-squares" lines.

[15] Discussion of financial control nearly always considers funds for ongoing expenses, or subsidies, ignoring construction monies. This tendency may be ill-advised when the latter sums are substantial and perhaps far more susceptible to government control. For Mexico, I have found the following dangers to university autonomy: (1) these allocations are sporadic, and therefore not determined by the cushioning force of incrementalism; (2) they receive more government scrutiny (3) they may set new policy directions. Some balancing factors are: (1) construction needs are sporadic, so fluctuations do not imply control; (2) the university community has rarely charged government control via construction allocations; (3) new policy trends presumably would be observable subsequently in ongoing allocations.

[16] Guillermo Ortiz Garduño, interviewed February 13, 1976, Mexico City.

[17] A basic statement on access is found, for example, in Gabriel Almond and G. Bingham Powell, Comparative Politics: A Developmental Approach (Boston: Little Brown, 1966), pp. 73-91.

[18] Ministry of Education, Las universidades, pp. 1-2.

[19] Latapí, interviewed November 10, 1975 and April 19, 1976, Mexico City.

[20] ANUIES, Catálogo de carreras (México: ANUIES, 1973), pp. 12-15. Data on student population and careers come from ANUIES and from the Ministry's Prediagnóstico (Mexico City: SEP, 1975), pp. 113-41, and its Informes, 1971-1975, and from UNAM's and the IPN's Statistics Departments.

[21] Prediagnóstico, pp. 21-22.

[22] The Spearman's rho is a measure of the correlation between two ordinal scales. It is 1.0 for perfect agreement, -1.0 for perfect disagreement, and 0 for no relationship whatsoever.

[23] The categories are: (1) social and administrative down, miscellaneous up; (2) social and administrative down, agricultural up; (3) social and administrative down, engineering up; (4) social and administrative down, medical and applied up; (5) social and administrative down, medical up; (6) no changes; (7) medical up, engineering and technology and social and administrative down; (8) engineering and technology up, agricultural down; (9) social and administrative up, humanities and education down; (10) medical up, engineering and

Footnotes--continued

technology down; (11) social and administrative up, medical down; (12) humanities and education up, miscellaneous down; (13) social and administrative up, miscellaneous down; (14) social and administrative up, engineering and technology down.

[24] Since 1972, 1973, 1975, and 1976 are missing from our data, Echeverría's administration is underrepresented. The data speak more to distribution-funding relationships under his two predecessors; thus the following tests nicely complement the past ones. Statistics are based on 284 cases.

[25] Ministry of Education, Las universidades estatales de México 1973 (Mexico City: SEP, n.d.). I am told that either the Ministry of the Presidency or of the Interior gathered the data.

[26] Ibid., p. II.

[27] "Graves conflictos en las universidades mexicanas," (no author), Universidades, no. 50 (October-December 1972), p. 87.

[28] I have also explored the effects of state and private funds on federal allocations. They might help predict more of the latter by non-coercive factors. There are no significant relationships until year and population are controlled, at which point the relationships are negative ($r = -.76$, $p < .01$ for state allocations, and $r = -.24$, $p < .01$ for private income). Thus they do help to gauge more of the federal funding by non-coercive factors. Taken together, last year's funding plus population plus state and private contributions predict more than 90% of the federal allocations.

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